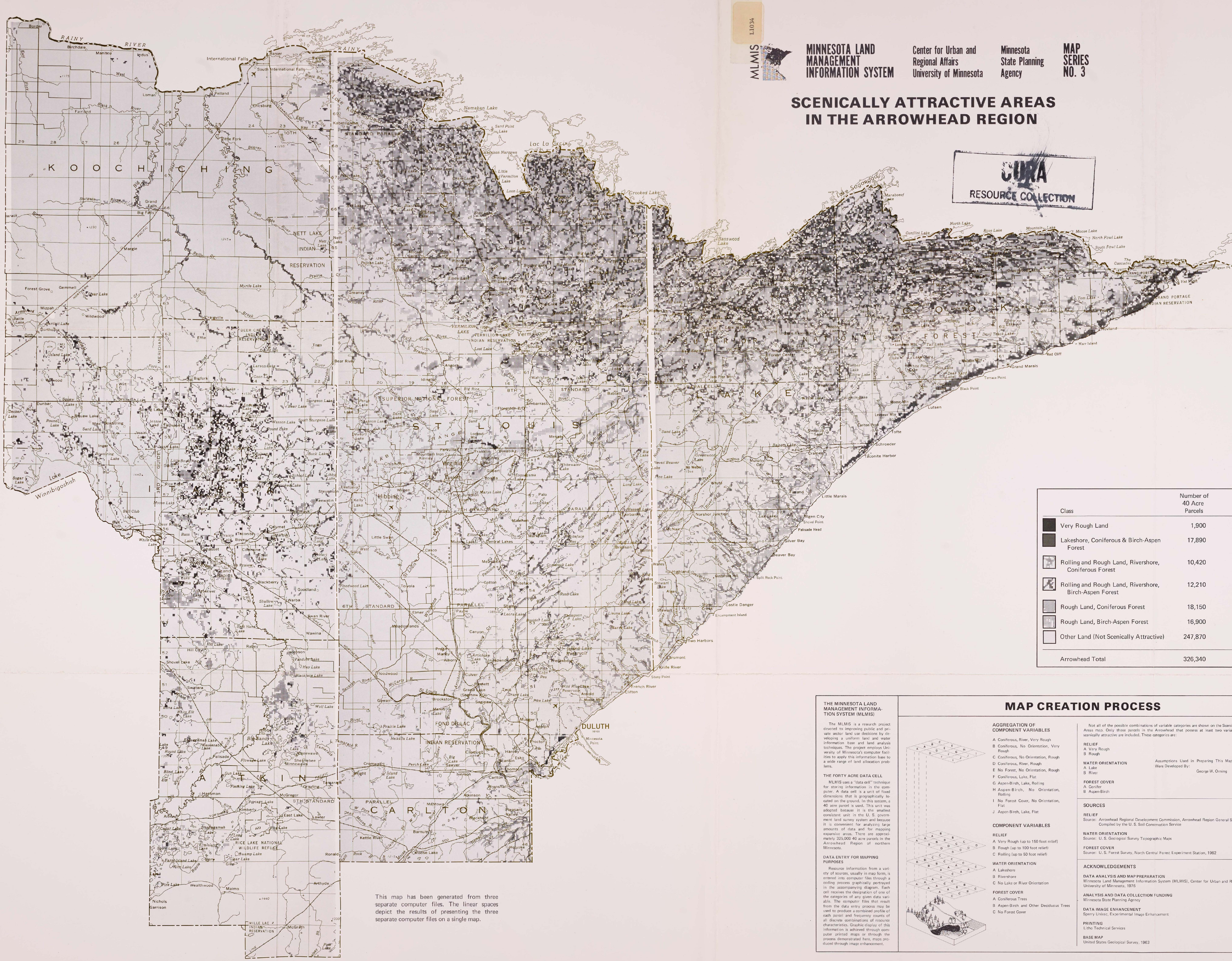
MLMIS
MINNESOTA LAND
MANAGEMENT
INFORMATION SYSTEM

Center for Urban and
Regional Affairs
University of Minnesota

Minnesota
State Planning
Agency

MAP
SERIES
NO. 3

SCENICALLY ATTRACTIVE AREAS IN THE ARROWHEAD REGION



This map has been generated from three separate computer files. The linear spaces depict the results of presenting the three separate computer files on a single map.

	Class	Number of 40 Acre Parcels	Percent of all Parcels
■	Very Rough Land	1,900	0.58
■	Lakeshore, Coniferous & Birch-Aspen Forest	17,890	5.79
▨	Rolling and Rough Land, Rivershore, Coniferous Forest	10,420	3.19
▨	Rolling and Rough Land, Rivershore, Birch-Aspen Forest	12,210	3.74
▨	Rough Land, Coniferous Forest	18,150	5.56
▨	Rough Land, Birch-Aspen Forest	16,900	5.18
□	Other Land (Not Scenically Attractive)	247,870	75.96
	Arrowhead Total	326,340	100.00%

THE MINNESOTA LAND MANAGEMENT INFORMATION SYSTEM (MLMIS)

The MLMIS is a research project devoted to improving public and private sector land use decisions by developing a uniform land and water information base and land analysis techniques. The project employs University of Minnesota's computer facilities to apply this information base to a wide range of land allocation problems.

THE FORTY ACRE DATA CELL

MLMIS uses a "data cell" technique for storing information in the computer. A data cell is a unit of fixed dimensions that is geographically located on the ground. In this system, a 40 acre parcel is used. This unit was adopted because it is the smallest consistent unit in the U. S. government land survey system and because it is convenient for analyzing large amounts of data and for mapping expansive areas. There are approximately 325,000 40 acre parcels in the Arrowhead Region of northern Minnesota.

DATA ENTRY FOR MAPPING PURPOSES

Resource information from a variety of sources, usually in map form, is entered into computer files through a coding process graphically portrayed in the accompanying diagram. Each cell receives the designation of one of the categories of any given data variable. The computer files that result from the data entry process may be used to produce a combined profile of each parcel and frequency counts of all discrete combinations of resource characteristics. Graphic display of this information is achieved through computer printed maps or through the process demonstrated here, maps produced through image enhancement.

MAP CREATION PROCESS

AGGREGATION OF COMPONENT VARIABLES

A Coniferous, River, Very Rough
B Coniferous, No Orientation, Very Rough
C Coniferous, No Orientation, Rough
D Coniferous, River, Rough
E No Forest, No Orientation, Rough
F Coniferous, Lake, Flat
G Aspen-Birch, Lake, Rolling
H Aspen-Birch, No Orientation, Rolling
I No Forest Cover, No Orientation, Flat
J Aspen-Birch, Lake, Flat

COMPONENT VARIABLES

RELIEF
A Very Rough (up to 150 foot relief)
B Rough (up to 100 foot relief)
C Rolling (up to 50 foot relief)

WATER ORIENTATION
A Lakeshore
B Rivershore
C No Lake or River Orientation

FOREST COVER
A Coniferous Trees
B Aspen-Birch and Other Deciduous Trees
C No Forest Cover

Not all of the possible combinations of variable categories are shown on the Scenically Attractive Areas map. Only those parcels in the Arrowhead that possess at least two variables defined as scenically attractive are included. These categories are:

RELIEF
A Very Rough
B Rough

WATER ORIENTATION
A Lake
B River

FOREST COVER
A Conifer
B Aspen-Birch

Assumptions Used in Preparing This Map Were Developed By:
George W. Orning

SOURCES

RELIEF
Source: Arrowhead Regional Development Commission, Arrowhead Region General Soil Map Compiled by the U. S. Soil Conservation Service

WATER ORIENTATION
Source: U. S. Geological Survey Topographic Maps

FOREST COVER
Source: U. S. Forest Survey, North Central Forest Experiment Station, 1962

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DATA IMAGE ENHANCEMENT
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PRINTING
Litho Technical Services

BASE MAP
United States Geological Survey, 1963